**B-59: Comparative study on nitrogen release pattern of an alfisol treated with urea, isobutylidene diurea (IBDU) and Gliricidia green manure**

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The pattern of N release in soils is influenced by addition of fertilizer and green manure. A pot experiment was conducted to investigate the pattern of N availability

of an alfisol treated with urea, isobutylidene diurea (IBDU), and Gliricidia green manure. These materials were added at different rates, so that the added nitrogen to each pot was equal in all treatments.

Rice was grown in 3 replicates of each treatment and another 3 replicates were kept without growing rice. The experiment was conducted over a period of 8 weeks and soils were analysed for available $NH_4^+$ and $NO_3^-$ at 1st, 2nd, 4th, 6th and 8th weeks of incubation. At the end of the experimen,t nitrogen uptake by rice plants was also determined.

Maximum ammonification took place during the initial 2 weeks. The levels of N release were in the sequence Urea > IBDU > Gliricidia > control. In urea treatment, N release was 7.33 mg / 100g soil, whereas in the control treatment it was 2.46 mg/100g soil. Maximum nitrification took place during the 2nd and 4th weeks. The levels of N release showed the same sequence as for ammonification, having the highest level of 5.17 mg/100g soil in the urea and the lowest of 2.69 mg/100g in the control. The decreases of available N observed in the treatments with plants could be attributed to the uptake by plants as well as partially to losses.

A constant level of available N was maintained by IBDU (5.15 - 5.22 mg/100g soil) from 4th week up to the 8th week. Such a uniform level was not indicated by other treatments.

Highest total N uptake of 0.07 g/pot was observed in urea and IBDU applied pots. Thus, efficient N utilising ability could be seen in IBDU treated soil.